

**OPTICAL PICKUP APPARATUS, RECORDING/REPRODUCING APPARATUS  
PROVIDED WITH THE OPTICAL PICKUP APPARATUS, OPTICAL ELEMENT,  
AND INFORMATION RECORDING/REPRODUCING METHOD**

*Inv. a17*  
**BACKGROUND OF THE INVENTION**

The present invention relates to an optical pickup apparatus, a recording/reproducing apparatus with the optical pickup apparatus, an optical element, and an information recording/reproducing method.

Recently, as the practical application of the short wavelength red laser, a DVD which is a high density optical information recording medium (called also optical disk) having almost the same dimension as a CD (compact disk) and the larger capacity, comes into the production. In a DVD recording/reproducing apparatus, the numerical aperture NA on the optical disk side of an objective lens when a semiconductor laser of 650 nm is used, is 0.6 - 0.65. The DVD has a track pitch of 0.74  $\mu\text{m}$ , and the minimum pit length of 0.4  $\mu\text{m}$ , and is in densification, in which dimensions are